Salmon Salvage Proposal

Background

The Salmon/Scott River Ranger District of the Klamath National Forest proposes the Salmon Salvage Project to provide for public and forest worker safety, to salvage fire-damaged timber before it loses its economic value, and to reduce the likelihood of future high severity fires in project and adjacent areas. This proposal encompasses 1,872 acres within the 14,779 acre fire perimeter. The Salmon River Complex (the Complex) burned approximately 14,779 acres of Klamath National Forest land in Siskiyou County, CA between July 31 and August 30, 2013.

The Complex was a combination of the Boulder and the Shelly fires that were human-started along the Sawyer's Bar road (County road 1C01). The Salmon River Complex re-burned steep granitic watersheds that had burned at high intensity during the 1987 fires and to a lesser degree during the Hog Fire of 1977.

The project is located within the Olsen Creek, Whites Gulch, and Little North Fork of the Salmon River Watersheds. The project is west of Sawyers Bar, California in Siskiyou County T40N R11W S7-10, 15-21, 30; T41N R12W S35; T40N, R12W S 10-24 and 27-31, Mount Diablo Meridian; T10N R8E S 4-6 and 8-9; T11N R8E S28 and 32-33, Humboldt Meridian (see attached vicinity map). Vicinity and project maps are enclosed. Elevation ranges from 1,440 to 6,240 feet.

In order to respond to post-fire conditions, the Klamath National Forest has developed a four part aproach. The first part, which has already ocurred, is to mitigate damage caused by fire suppression tactics (for example, by creating waterbars on hand fire lines, creating dozer-constructed waterbars on fire lines, spreading slash on dozer lines, and redistributing piles of debris). Fire suppression rehabilitation was all completed in tandem with the original fire control. The second part is the Burned Area Emergency Response (BAER), which is currently underway and described below. The third part is this salvage proposal. The fourth part will be a future action of site preparation and replanting fire damaged plantations, and will be addressed in a later decision from the Forest Service.

The window for implementation of BAER treatments for the Salmon River Complex is one year after the date of containment. The approved treatments include protection of cultural sites, noxious weed detection, seeding, trail safety and drainage treatments, road drainage treatments, and channel treatments. Some treatments including trail work and seeding have been completed. Road drainage treatments and sediment basin work on Olsen are ongoing. Noxious weed detection and removal, protection of cultural sites, and hand treatment of sand at creek confluences have yet to be completed.

Seeding with native grasses occurred in the fall just prior to wetting rains. Trail signs warning of post-fire safety hazards and trail drainage work on the Garden Gulch occurred in October.

Road drainage work on Forest Service roads 40N33, 40N39, 40N42, and 50N51 is ongoing and will continue during periods of dry weather in the fall of 2013. The Olsen Creek sediment basin was cleaned in October and will be subsequently cleaned as needed during the winter and spring of 2014.

Treatments yet to occur include protection from looting of artifact deposits at cultural sites by installing locally available vegetative camouflage or other material to obscure the artifacts on the surface. Initial detection survey and hand treatment of noxious weeds will take place in the spring and summer of 2014.

Hand removal of sand from the confluence with the North Fork of the Salmon River of Big Creek, Olsen Creek, Cronan Gulch, and Kanaka Gulch will occur as needed in the spring and summer of 2014.

Management Direction

The 1995 Klamath National Forest Land and Resource Management Plan (Forest Plan, as amended) includes Standards and Guidelines from the Northwest Forest Plan. The Forest Plan provides forest-wide and management area (MA) direction for projects. Management Areas within the project area are shown in Table 1.

Table 1. Management Areas (MAs) found within the project boundary.

Management Area	Pages in Forest Plan	Acres	Percentage of Project Area (%)
MA 2- Wilderness	4-70 to 4-75	567	3.84
MA 5- Special Habitat, Late Successional Reserves (LSR)	4-82 to 4-89	3,296	22.32
MA 10- Riparian Reserves (RRs)	4-106 to 4-114	3,053	20.68
MA 13- Designated and Recommended Recreational River	4-120 to 4-122	584	3.95
MA 15- Partial Retention Visual Quality Objective (VQO)	4-126 to 4-127	7,050	47.74
MA 17- General Forest	4-131 to 4-132	182	1.23

In addition to Forest Plan direction, the interdisciplinary team (IDT) considered guidance from mid-level assessments or guidance documents, including the Forest Wide Late Successional Reserve (LSR) assessment and the North Fork Salmon Watershed Analysis. The Salmon River watershed has been identified as a Key watershed for salmon. The project area includes 4,104 acres of the Portuguese, 2,672 acres of the Snoozer, and 533 acres of the Crapo Inventoried Roadless areas; 11,923 acres of Critical Habitat for the Northern Spotted Owl; and 6,267 acres of Wildland Urban Interface (WUI) that burned. Of these, the project proposes treatment for salvage and hazard tree abatement in only 1,872 acres; however, the only activity being proposed within Inventoried Roadless areas is hazard tree reduction. Table 2 displays non-Forest Plan allocations by treatment type.

Table 2- Acres of Non Forest Plan Allocations by Treatment Type

Treatment	Inventoried Roadless Area	NSO* Critical Habitat	Wildland Urban Interface	Project Acres
Salvage	0	214	246	**334**
Hazard Tree	78	978	1,205	**1,538**
Total Acres	78	1,192	1,451	**1,872**

*Northern Spotted Owl

The interdisciplinary team designed the project to be consistent with all applicable law, regulation, policy, and direction. Forest-wide standards and guidelines that are pertinent to this project, and the ways in which the project is consistent with this direction, are included in the draft Forest Plan Consistency Checklist, available in the project record.

Sixty four percent (64%) of the project area lies within Critical Habitat (Klamath West Subunit KLW 8) as designated in 2012 by the USDI Fish and Wildlife Service (USDI FWS or USFWS) for the federally-listed northern spotted owl (NSO; *Strix occidentalis caurina*). Critical Habitat contains physical and biological features essential to the conservation of the species. The Northern Spotted Owl Recovery Plan (USDI FWS 2011) identifies a recovery goal, objectives, and actions for incorporation into project planning.

Purpose and Need for Action

The proposed action was developed in response to the following needs:

1. Reduced safety hazards to the public and forest workers from falling trees. Trees killed or severely burned by wildfire are often unstable and at risk for falling or snapping off, especially during high wind events. It is important that infrastructure, especially roads and trailheads, are maintained for use by public and Forest workers (*i.e*, abating "hazard trees."). Furthermore, dead and dying trees within proposed salvage areas present a safety hazard to fire fighters (should the area burn again) and to those who prepare the site for future plantings.
2. Obtaining the maximum economic commodity value from burned timber by offering a sale while the wood is still marketable. The Forest Plan directs the Forest to harvest dead or dying trees to produce wood products as consistent with Forest goals. Dead timber loses significant value if left standing beyond two winters and is most profitable if salvaged even sooner. Capturing the marketability of the timber provides the agency a viable means of meeting this and other project needs, since the timber sale can be used to fund implementation. If treatment is delayed beyond the marketability period of the timber, the Forest Service will need to pay for the hazard tree abatement and removal of dead and dying trees in order to meet the first need described above.

By contrast, if salvage occurs during the marketability period, funds gained from the salvage sale can be used for additional restoration work.

3. Increasing the likelihood and speed by which burned conifer stands are reforested. Although wildfires have some benefits (*e.g*. snag and downed wood creation), intensely burned forested areas may be slow to recover or may not recover at all without human intervention. Following a high severity wildfire, heavy fuel loading predisposes an area to future higher intensity and severity wildfires that inhibit conifer regeneration and may result in stand type changes to brush or other non-conifer stand types. Forest Plan goals include providing a programmed flow of timber products sustainable through time, accelerating the development of late-successional conditions for wildlife habitat, and providing for a resilient, forested ecosystem for future generations.

Existing and Desired Condition

Table 3 below provides a summary of the existing and desired conditions, which were considered during development of the purpose and need and proposed action.

Table 3- Existing and Desired Conditions

Statement of Need	***Existing Condition***	***Desired condition***
1. Safety	Roadways and trailheads within the project area are surrounded by fire killed and damaged trees and preexisting danger trees that pose a hazard to the public and Forest workers. Without treatment hazards will continue to increase, infrastructure may be damaged, and access may be impeded.	Access to public land along roadways and trailheads are unimpeded. Hazards from falling danger trees are mitigated to the extent possible.
2. Timber Commodity and Project Viability	About 30% of the fire acreage burned at medium to high severity (stands where over half the trees were killed).	Dead or dying trees are harvested to produce wood products as consistent with Forest goals. (Forest Plan, pp. 4-131-132 and 4-49)
3. Forested Resilient Conifer Stands	Approximately 30% of the fire acreage burned at medium to high severity (stands where over half the trees were killed) and 1,440 acres of that burn severity were previously conifer stands with an average diameter at breast height of more than ten inches. Without treatment, intensely burned forested areas may be slow to recover or may not recover at all and heavy fuel loading will result from fallen snags. This fuel loading predisposes an area to future higher intensity and severity wildfires that inhibit conifer regeneration. Previous conifer stands will likely remain in early successional conditions (e.g. brush fields), eliminating a return to mid- to late-successional mixed	General Forest MA: A programmed flow of timber is provided, which is sustainable through time. Conifer stocking levels and high growth rates are maintained commensurate with the capability of the site to produce wood fiber. Forested stands are resilient to wildland fire, insect, disease, and other damage. (Forest Plan, pg. 4-131) LSR MA: Conditions of late-successional forest ecosystems are enhanced to serve as habitat for late-successional species. Continuous areas of multi-layered forests with high quality habitat characteristics and attributes are common. (Forest plan, pg. 4-83)

	conifer forests. Nesting and Roosting (NR) and Foraging (F) habitats are limited due to ecological type, past harvesting, historic and recent wildfire events. Four known NSO home ranges within the analysis area (Kl1053, KL1052, KL1043, KL4042) have limited habitat available. Late successional habitat is limited. Recent wildfire events resulted in some stand replacing fire severity within suitable NR F habitat. It is estimated that 115 acres of nesting and roosting habitat, and 420 acres of foraging habitat were lost due to the fire.	Partial Retention MA: An attractive, forested landscape is provided and is maintained for a sustained yield of wood products in areas capable, available, and suitable for timber production. Forested stands are resilient to wildland fire, insect, disease, and other damage. (Forest Plan, pg. 4-126) Recreational River MA: Rivers and their immediate environments are protected for the benefit and enjoyment of present and future generations. Area is managed for a full range of silvicultural practices. (Forest Plan, pg. 4-120)

Proposed Action

The proposed action was designed to meet the purpose and need for action. The proposed action will treat about 1,872 acres and 32 miles of roadside hazard within the 14,779-acre fire perimeter. Acres by treatment type are described in Table 4 below and do not account for the overlap in treatment types. Treatment acreages are approximate at this point and may be adjusted and refined following scoping.

This project includes the following two types of treatments: (1) salvage harvest; and (2) hazard tree reduction. Map(s) of the proposed treatments are enclosed.

Table 4- Acres of Management Areas (MAs) by Treatment Type

	Treatment Type (Acres)		
Management Area	**Salvage**	**Hazard Tree**	**MA Total**
MA 5-Special Habitat, LSR	122	509	***631***
MA 10-Riparian Area	20	276	***296***
MA 13-Recreational River	9	62	***71***
MA 15-Partial Retention VQO	159	584	***743***
MA 17-General Forest	24	107	***131***
Grand Total	***334***	***1.538***	***1,872***

1. Salvage Harvest

The Forest Service proposes to target areas of medium and high severity fire (or greater than 50% canopy cover killed, based on Landsat Thematic Mapper imagery) for salvage logging operations. About 4,474 acres (30.4% of the fire area) burned at these intensities. Of these 4,474 acres, about 1,440 acres were of conifer stands greater than 10 inch average diameter at breast height (dbh), or of size suitable for salvage harvest. From these 1,440 acres, 507 acres (3.4% of the fire area) were evaluated for potential salvage; this reduction was mainly based on land allocation. Of these reduced acres, 334 acres (2.2% of the fire area) were determined feasible in terms of

logging systems, accessibility, and amount of mortality, and are proposed for salvage logging treatments within 16 units.

Salvage logging treatments will be accomplished by ground-based, skyline, and helicopter logging systems; acres are broken down in Table 5 below.

Table 5- Acres by Logging System

Logging System	Acres
Ground Based	14
Skyline	200
Helicopter	114
Total	***334***

The Forest Service will develop marking guidelines for salvage units based upon Report #RO-11-01 "*Marking Guidelines for Fire-Injured Trees in California*" (Smith and Cluck, May 2011), which used peer reviewed science for tree species in Northern California. The guidelines provide for a sliding scale of the probability for tree mortality based on percent volume or length of crown scorched by fire. The responsible official has chosen to salvage trees with a 0.7 probability of mortality, meaning that the Forest Service will harvest trees with a 70% or greater chance of dying. It is anticipated that the majority of trees within salvage units will be salvaged, as most burned at high severity. Project design features for wildlife will dictate the number of snags left standing in order to meet forest wide standards and guidelines. Snags left in each unit will vary based on unit size, shape, and land allocation. Where snags are retained, they will be left in groups to provide structure and cover for wildlife, as well as allow for protection during post-harvest fuels treatments.

After harvest, the Forest Service will evaluate the need for fuel treatment within harvest units depending on location on slope, proximity to natural and man-made fire breaks, fuel loading, existing soil cover, and replanting needs. Fuel treatments being considered include: broadcast burning, jackpot burning, and pile burning. After harvest, the Forest Service will also evaluate the need for replanting, especially where stocking levels are below desired levels or seed source is inadequate, in a separate decision.

Project access will mainly require the use of NFTS roads and County Roads. No new temporary roads are being proposed at this time. Two existing road beds will be used for temporary access to salvage units, totaling about 3,300 feet. About 12 landings between 0.5 and two acres will be needed. Existing landings will be used where possible. It is anticipated that five (5) new landings will need to be constructed. Landings and temporary roads will be closed and hydrologically stabilized upon project completion

2. Hazard Tree Reduction

The Forest Service will identify and remove hazard trees along about 33 miles (or within about 1,540 acres) of maintenance level 2 (about 24 miles) and level 3 (about six miles) National Forest Transportation System roads and County Roads (about 3 miles). Both the mileage and acres of treatment proposed are an overestimation; the

numbers are merely representative of the entire length and area being evaluated for hazard trees. Trees along the roadway and within these areas will only be removed if they are identified as a hazard. Hazard trees will be identified using the *Regional Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region* (Report #RO-12-01). The Forest Service will develop marking guidelines for salvage units based upon Report #RO-11-01 "*Marking Guidelines for Fire-Injured Trees in California*" (Report # RO-11-01, Smith and Cluck, May 2011). Because of safety concerns associated with hazard trees, the responsible official has chosen to salvage trees with a 0.6 probability of mortality, meaning that the Forest Service will mark trees with a 60% or greater chance of dying for harvesting.

After hazard tree removal, the Forest Service will evaluate the need for fuel treatment along roads depending on location on slope, proximity to natural and man-made fire breaks, fuel loading, existing soil cover, and concentration of hazard trees felled. Fuel treatments being considered include: lop and scattering, chipping, jackpot burning, and pile burning.

Project Design Features

Below is a list of preliminary project design features (PDFs) that have been developed up to this point in the project. They are put in place as a mechanism to ensure compliance with NEPA, the Forest Plan, and other applicable laws and regulations. The project design features will be adjusted and may change with the final decision. Project design features are categorized by resource.

PDF Title	Description	Applicable Units
Watershed - 1	When working in riparian reserves- When there is a 30 percent chance of rain in the next 24 hours the timber sale administrator (TSA) will be on site to insure that winterization or erosion control procedures are implemented in a timely fashion and to initiate shutdown or resume operations. Operations will not resume until suitable weather, soil, and forecast conditions exist.	To Be Determined
Watershed - 2	Cable corridors will be placed on the landscape as to minimize disturbance to unstable lands (such as inner gorges, active landslides and toe zones).	To Be Determined
Watershed – 3	Tractors and mechanical harvesters will be excluded from the unstable land component of Riparian Reserves (RRs).	To Be Determined
Watershed - 4	Project Riparian Reserves are established at 170 foot (height of 1 site-potential tree), 170 foot, and 340 foot slope distance from the edge of seasonal, permanent non-fish-bearing, and fish-bearing streams, respectively, as specified in the North Fork Watershed Analysis (1995, Appendix J 1-2). Riparian Reserves will be measured along the slope from the high watermark up the hillslope.	To Be Determined
Watershed - 5	To limit slope disturbance, Inner Gorge terrain (> 65% slope) that extends beyond Riparian Reserves will be buffered by 20 foot slope distance from mechanical equipment activities. In areas where treatments may conflict a hydrologist will be consulted.	To Be Determined

Watershed - 6	Skidding equipment will be restricted to slopes less than 35 percent. Skid trails that connect benches in dormant landslide terrain can have minor portions of the skid trails on slopes greater than 35 percent.	To Be Determined
Watershed - 7	Maintain existing coarse woody debris (CWD) by having ground-based equipment avoid the larger diameter logs as much as practical.	To Be Determined
Watershed - 8	Use existing skid trails instead of building new skid trails unless using existing skid trails will have greater negative effects than building new. Use no skid trails in areas (1) in which ground-based mechanical equipment is excluded; and (2) unstable areas, wetlands or meadows (excluding small springs and seeps). Designation of new skid trails will be approved by Timber Sale Administrator.	To Be Determined
Watershed - 9	Take offs of skid trails that intersect roads will be obliterated or effectively blocked to vehicle access.	To Be Determined
Watershed - 10	Ground-based skidding will require front-end suspension of logs on skid trails.	To Be Determined
Watershed - 11	No full bench skid trails will be constructed. (Full bench skid trails have the entire skid trail cut into the hill slope).	To Be Determined
Watershed - 12	Perennial streams will not be crossed by skid trails. Intermittent channels may be crossed when dry and at locations designated by the Forest Service.	To Be Determined
Watershed - 13	Skid trails that cross intermittent streams or dry swales (*i.e.* depressions in the landscape that do not meet definition for a designation as an RR) will be restored before any storm (with reasonable chance of causing offsite sediment movement), or after use is complete. This generally consists of removing excess soil, reshaping and waterbarring former approaches, and spreading slash on the former crossing.	To Be Determined
Watershed - 14	Limit equipment disturbance within 20 feet on either side of swales by minimizing equipment crossings and avoiding running trails up the axis of swales. Swales are shallow ephemeral channels that do not meet the definition of a RR because they lack annual channel scour.	To Be Determined
Watershed - 15	Skid trails will be located to minimize impacts to Riparian Reserves.	To Be Determined
Watershed - 16	Slash or water bars will be applied to skyline yarding corridors where necessary to minimize the concentration of surface runoff and where the ground cover is below 50 percent.	To Be Determined
Watershed - 17	Place corridors for skyline-yarding outside stream RRs parallel to the stream channel unless field assessment by earth scientist and sale administrator determines that placing them within the RR will not substantially damage residual trees, soil or fish habitat.	To Be Determined
Watershed - 18	All skyline yarding stands will require one end suspension. Full suspension will be required for any yarding across or over streams.	To Be Determined
Watershed - 19	No more than 15% of a harvest unit should be disturbed by cable corridors, swing trails, main skid trails, and landings.	To Be Determined
Watershed - 20	Swing trails will be waterbarred and/or covered in slash to prevent concentration of surface runoff and prevent runoff from the road from entering the swing trails. The swing trail takeoff point will be obliterated to	To Be Determined

	discourage recreational use.	
Watershed - 21	Construct new landings outside both stream-course and unstable-land RRs and away from locations where sediment is likely to enter streams (areas that have a hydrologic connection to streams).	To Be Determined
Watershed - 22	Reused landings in RRs will have site specific erosion control measures to reduce risk of sediment delivery into streams.	To Be Determined
Watershed - 23	Existing landings will be used to the extent possible.	To Be Determined
Watershed - 24	Operate according to the Forest's Wet Weather Operation Standards (WWOS) (USDA Forest Service 2002).	To Be Determined
Watershed - 25	At Project conclusion, landings will be closed and configured for long-term drainage and stability by reestablishing natural runoff patterns.	To Be Determined
Watershed - 26	During reconstruction of any landings, material will not be sidecast.	To Be Determined
Watershed - 27	To aid soil and vegetative recovery, reused landings in RRs and constructed landings that are not needed for future projects will be restored after use as specified by an earth scientist. Restoration may include subsoiling and covering with slash or mulch.	To Be Determined
Watershed - 28	Skid trail erosion control work will be kept current during implementation. Erosion control and drainage of skid trails will be complete prior to shutting down operations due to wet weather or at project completion.	To Be Determined
Watershed - 29	To provide for water quality, springs identified outside of Riparian Reserves will be flagged and avoided from mechanical equipment activities.	To Be Determined
Watershed - 30	In general, hazard trees that are felled within hydrologic Riparian Reserves will be retained on site where they are located downhill of the road unless excess to riparian needs or removed to address fuel concerns. Due to potential safety concerns, felled trees which are uphill of the road may be removed. This provision applies both to fish-bearing and non-fish-bearing RRs. In all cases, RR trees located uphill of roads and crossings should be directionally felled such that subsequent log yarding will not cross channels nor will create gouging that will input sediment into channels. Site specific retention of felled hazard trees uphill of roads may be recommended by resource specialists.	To Be Determined
Watershed - 31	The project is proposed to take place during the normal operating season (NOS) that is defined as April 15 to October 15 and in dry periods outside the NOS with Line Officer approval. Actions will be restricted during periods of wet weather during the NOS. <u>Exceptions</u> To minimize disturbance to fish, no ground disturbing activities will occur within the Riparian Reserve of fish-occupied stream segments between October 15th and May 15th. To minimize effects to anadromous fish, including spawning, egg incubation, and just-hatched fry, no in-stream activities, including water drafting, will occur in anadromous stream segments between October 15th and June 15th.	To Be Determined

Watershed - 32	Live trees directly rooted into the banks or otherwise and obviously integral to the stability of the channel bank will not be removed.	To Be Determined
Watershed - 33	Directional felling will be used to protect streambanks.	To Be Determined
Watershed - 34	Proposed activities will maintain post-fire shade conditions within RRs. Site specific exceptions may be made where stream shade reduction will not adversely impact water temperature.	To Be Determined
Watershed - 35	Temporary road take-offs will be obliterated or effectively blocked to vehicle access.	To Be Determined
Watershed - 36	The proposed temporary roads on existing road beds will be outsloped, covered with slash if needed and blocked after the harvest season (prior to the first winter after use). The temporary roads will be hydrologically restored at project completion which may include removal of culverts and fills at stream crossings, out-sloping of road surfaces, and obliteration of temporary road segments.	To Be Determined
Watershed - 37	Improvements on the existing road to the project area will not over-steepen the failed road cuts, will minimize sidecasting, and maintain the ditches and cross drains or any outslope of the roadway.	To Be Determined
Watershed - 38	Spot rocking will used as necessary if small and isolated portions of the road system do not adequately dry to allow haul when most of the road is capable of haul. Provided haul over the newly rocked areas will not create adverse impacts, such as sediment moving offsite towards channels.	To Be Determined
Watershed - 39	Appropriate road watering will be implemented as roads dry to maintain road fines on site.	To Be Determined
Watershed - 40	Use erosion control methods on access and/or main roads that are treated for dust abatement to prevent any water leakage from causing sedimentation of streams	To Be Determined
Watershed - 41	Rock and gravel drafting sites if needed to prevent stream sedimentation	To Be Determined
Watershed - 42	When in fish-bearing (anadromous) waters : *NOAA Fisheries Water Drafting Specifications* 1. When in habitat potentially occupied by Chinook and Coho salmon, intakes will be screened with 3/32" mesh for rounded or square openings, or 1/16" mesh for slotted openings. When in habitat potentially occupied by steelhead trout, intakes will be screened with 1/8" mesh size. Wetted surface area of the screen or fish-exclusion device shall be proportional to the pump rate to ensure that water velocity at the screen surface does not exceed 0.33 ft/sec. a. Use of a NOAA approved fish screen will ensure the above specifications are met. 2. Fish screen will be placed parallel to flow. 3. Pumping rate will not exceed 350 gallons-per-minute (gpm) or 10% of the flow of the anadromous stream drafted from. 4. Pumping will be terminated when tank is full. Additional applicable specifications: • Water drafting by more than one truck shall not occur simultaneously.	To Be Determined
Watershed -	When in fish-bearing (non-anadromous) waters:	To Be

43	• Drafting rate should not exceed 350 gpm for streamflow greater than or equal to 4.0 cubic-feet-per-second (cfs). • Below 4.0 cfs, drafting rates should not exceed 20 percent of surface flows. • Drafting should cease when bypass surface flows drop below 1.5 cfs. • Intakes, for trucks and tanks, shall be placed parallel to the flow of water and screened, with opening size consistent with the protection of aquatic species of interest. o Screen sizes are not provided by BMPs. It is the best judgment of the fish biologist that screen sizes described by NOAA specifications for steelhead (1/8" mesh size) are applicable for rainbow trout. • Water drafting by more than one truck shall not occur simultaneously	Determined
Watershed - 44	When drafting from non-fish-bearing waters: • Drafting rate should not exceed 350 gallons per minute for stream flow greater than or equal to 2.0 cfs. • Drafting rate should not exceed 50 percent of surface flow. • Drafting should cease from when bypass surface flow drops below 10 gallons per minute. • Drafting by more than one truck shall not occur simultaneously.	To Be Determined
Watershed - 45	Water drafting sites located in non-fish-bearing waters only may include minor instream modification, such as fine sediment removal and building of board/plastic dams, at the discretion of the Project Fish Biologist or Hydrologist. All boards and plastic will be removed after use. Water drafting sites located within fish-bearing stream segments may not be modified, except rocking the approach to prevent sedimentation.	To Be Determined
Watershed - 46	Draft water only at designated water drafting sites.	To Be Determined
Watershed - 47	If Proposed Action includes upgrades or improvements to stream crossing they are to be built to Forest Plan standards.	To Be Determined
Watershed - 48	A spill containment kit will be in place where refueling and servicing take place.	To Be Determined
Watershed - 49	Fueling and servicing of vehicles used for proposed activities will be done outside of RRs. No fueling/refueling of mechanical equipment such as chain saws will occur within 100 feet of any flowing watercourse or intermittent drainage. Report spills and initiate appropriate clean-up action in accordance with applicable State and Federal laws, rules and regulations. The forest hazardous materials coordinator's name and phone number shall be available to Forest Service personnel who administer or manage activities utilizing petroleum-powered equipment. In the occurrence of a spill which may affect listed aquatic species, NOAA Fisheries will be notified for emergency consultation.	To Be Determined
Watershed - 50	Where necessary, effective soil cover (mulch, woody debris, rock, vegetation, blankets) will be provided on exposed soil surfaces for both short- and long-term recovery; and disturbed areas will be revegetated	To Be Determined

Watershed - 51	If available on site, post treatment soil cover will range from 50-80 percent depending on slope steepness and soil texture. If post-harvest soil cover is below recommended levels, slash will be left on site to prevent soil erosion.	To Be Determined
Watershed - 52	<u>Restrictions for handpile and windrow construction</u> *Place in a checkerboard pattern whenever possible (not one pile directly above another). *Handpiles must be small in size, 6 feet or less in diameter. *No handpiles within 15 feet of any perennial or intermittant stream channel. *Between 15 and 30 feet, handpiles may be constructed only if one of the following conditions exist: (1) not granitic soils, (2) slopes is <35%, or (3) ground cover >50%. If the condition cannot be met, then slash should be lopped and scattered.	
Watershed - 53	For perennial streams >1 foot width, only handpiles greater than 30 feet from the channel may be burned.	To Be Determined
Watershed - 54	For intermittent and small (<1 foot width) perennial streams, do not construct handpiles less than 15 feet from the channel.	To Be Determined
Watershed - 55	Prescribed fire effects in RR will mimic a low intensity backing fire, except for handpiles where higher intensity may occur to consume pile material. Ignition of underburns will generally not occur in RR, except to minimize the potential for burning material to roll down into a RR that would increase the potential for moderate or high intensity burns. Approval by the District Fish Biologist is needed for underburn RR ignitions.	To Be Determined
Watershed - 56	For underburning, construction of handlines in RRs closer than 25 feet to a watercourse shall be avoided where practical. Handline construction in riparian vegetation shall be avoided where practical. Handlines will be mitigated (waterbarred and covered with organic material) immediately following prescribed burning, when safe to do so.	To Be Determined
Watershed - 57	When underburning in RRs, at least 90% of the large woody debris will not be consumed, both standing and on the ground.	To Be Determined
Wildlife – 1	For large diameter Douglas fir trees > 40", a predicted mortality of 80% or better will be used for selection for marking.	To Be Determined
Wildlife – 2	Marking crews will coordinate with wildlife biologist to ensure NSO habitat components are retained as described in stand specific restriction	To Be Determined
Wildlife – 3	In treatment areas occurring within NSO Critical Habitat, retain the Primary Constituent Elements of nesting/roosting (PCE2), foraging (PCE3) and dispersal (PCE4) habitat as defined in the Final Critical Habitat rule. Elements to retain include large snags and downed logs, large diameter conifers and hardwoods, trees with previous indications of wildlife use (cavities, platform nests) or other characteristics such as large horizontal limbs or mistletoe brooms that provide wildlife value. Retained elements should be arranged in multi-layer stands and clumps where feasible. Retain habitat character in roadside treatment areas and throughout the salvage unit areas.	To Be Determined
Wildlife - 4	The Project should comply with the NSO Recovery Plan. Spotted owl recovery requires well distributed, older and more structurally complex multi-layered conifer forests. These high-quality spotted owl habitat stands are characterized as having large diameter trees, high amounts of canopy cover, and decadent components such as broken-topped live trees, well	To Be Determined

	developed mistletoe brooms, cavities, large snags, and fallen trees. Maintaining or restoring forests with high-quality habitat will facilitate the recovery of northern spotted owls. In treatment areas occurring within stands that provide habitat described in Recovery Action – 32 retain habitat components of large decadent trees, dense canopy cover, multi-layer stand structure, large snags and large downed logs, and large diameter hardwoods throughout the salvage unit areas. Safety is a primary consideration when addressing the need to remove trees identified as hazards. Where hazard trees meet the criteria described in RA-32 they should be carefully evaluated to determine the best way to mitigate any hazard. Only trees or groups of trees with RA-32 characteristics that pose an imminent hazard should be removed. Other options in the Hazard Tree Guidelines may be appropriate such as topping, pruning, or in some cases closure or restricted use of roads or road segments. Generally, habitat elements described in RA-32 that are scarce across the landscape and take a long time to replace once removed should be carefully evaluated in cooperation with a wildlife biologist prior to removal. Northern Spotted Owl Recovery Plan, Recovery Action-12 states that post-fire management should promote the development of NSO habitat elements that support spotted owls and their prey, especially those which require the most time to develop or recover (*e.g.*, large trees, snags, downed wood). Such management should include retention of large trees and defective trees, and planting of native species. To be consistent with Recovery Action 12, 1) retain snags and defective trees to an average of 5 snags/acre in groups where they will be maintained through time (draws, stream buffers, lower portion of treatment areas, and away from roads), 2) retain downed logs to an average of 6 logs/acre (greater than 20" diameter and 10' long), 3) plant trees in areas salvage with a species composition similar to what existed on the site pre-fire, this includes promotion of hardwoods that exist in the stand pre-fire.	
Wildlife – 5	Within LSRs, the effect of the salvage operation should have a positive effect or a neutral effect on late successional habitat. The areas treated should be contiguously >10 acres in size of each area treated and had crown closure reduced to less than 40%. Additionally, the impacted area should have more material than what is currently needed to meet desired downed log and snag requirements as identified in the Forest-wide LSR Assessment. All standing live trees should be retained.	To Be Determined
Wildlife -6	Retain at least 6 logs/acre (greater than 20" diameter and 10' long) when available. The logs will also be retained whenever possible provided that the amounts of logs do not exceed the fuel management objectives. In units proposed for broadcast burning (helicopter treatments), retain logs on the downhill lower 1/3 of the units. In units proposed for handpiling, pile away from the retained logs. These will be distributed throughout the treatment areas	To Be Determined
Wildlife – 7	Retain five (5) snags per acre. Snags should be left in clumps (skips of 0.25 to 1 acre in size). Snags should be retained to provide wildlife habitat value and priority for retention based on structure and longevity (retain the snag providing the best wildlife value and those that will last the longest). For units proposed for broadcast burning (helicopter treatments), retain these	To Be Determined

	snag clumps on the downhill lower 1/3 of the units. For treatment areas above the road retain clumps on the upper portions of the units to reduce potential removal from public firewood harvesting. In units proposed for handpiling, pile away from the retained snags. These will be distributed throughout the treatment areas. Coordination with marking crew and biologist will be incorporated to clarify snag retention.	
Wildlife - 8	Cull trees, large diameter hardwood (>15"dbh), and snags identified for retention will remain standing unless otherwise identified as a safety hazard. If these trees are felled as a safety hazard, retain as downed wood. When retaining snags and burned trees to meet snag PDFs, those with cat faces, broken tops, and cavities should be retained	To Be Determined
Wildlife – 9	A seasonal restriction of **February 1st to September 15** will apply to all treatments that modify habitat within 0.25 miles of an NSO activity center or within unsurveyed nesting/roosting habitat. LOP may be lifted if protocol surveys determine non-nesting on year of action.	To Be Determined
Wildlife – 10	Noise producing treatments that are above ambient noise levels within 0.25 miles of an occupied NSO activity center or unsurveyed post-fire suitable nesting/roosting habitat will have a seasonal restriction of **February 1st to July 9th**. This LOP can be lifted if protocol surveys determine NSOs are not nesting on year of action.	To Be Determined
Wildlife – 11	Surveys will follow regionally approved protocol or as agreed upon by local Level One Team.	To Be Determined
Wildlife – 12	In order to not treat more that 50% of an occupied NSO home range within any given year: within occupied or unsurveyed suitable habitat, no more that 50% of the nesting, roosting, or foraging habitat will be burned or mechanically treated in a single year in any one 7th field watershed up to 3,500 acres in size. If the 7th field watershed is greater than 3,500 acres, apply the design criteria at the 8th field watershed scale.	All proposed treatments
Wildlife – 13	No more than 50% of suitable NSO habitat within 0.5 mile of an NSO 0.5 mile core will be underburned in a given year.	To Be Determined
Wildlife – 14	When burning in spring, manage smoke so that light to moderate dispersed smoke may be present within a canyon or drainage but dissipates or lifts within 24 hours. When spring burning is conducted within 0.25 miles and uphill of a known NSO activity center or within 0.25 miles of unsurveyed nesting/roosting habitat (separated by a topographic feature), smoke is managed as described above, and ignition should be discontinued if heavy, concentrated smoke begins to inundate suitable habitat late in the afternoon.	To Be Determined
Wildlife – 15	No known bald eagle nest trees, perch trees, or roost trees within winter roosting areas will be removed or destroyed as a result of prescribed fire or fuels reduction treatments.	All proposed treatments if this bald eagle habitat is located.
Wildlife –16	To minimize smoke effects on bald eagles, prescribed burning will not be implemented in or within 0.5 mile of a known or suspected nest territory from **January 1st to August 31st**, or a known or suspected winter roost area from **November 1st to March 31st**. If a survey demonstrates that nest sites are not active, no seasonal restrictions are required.	All proposed treatments if located
Wildlife – 17	Actions that create noise above ambient levels within 0.25 miles of active or suspected bald eagle nests, or to be implemented within 0.5 mile line- of	All proposed

	-sight of such nests, will be seasonally restricted from **January 1st to August 31st**. If surveys demonstrate that bald eagles nest sites are not active, no seasonal restriction is required.	treatments if located
Wildlife – 18	Actions that create noise above ambient levels within 0.25 miles of an active or suspected bald eagle roost will be seasonally restricted from **November 1st to March 31st**. If surveys demonstrate that roosts are not active, no seasonal restrictions are required.	All proposed treatments if located
Wildlife – 19	In known occupied northern goshawk nest sites and management areas, no burning or use of heavy equipment will be implemented within 0.25 miles of the nest site between **March 1st and August 31st**. If protocol surveys are conducted and the site is found to be unoccupied, proposed actions may proceed.	All proposed treatments
Wildlife – 20	Areas discovered to have Survey and Manage species will be buffered using the appropriate management recommendation for the species.	To Be Determined
Fuels – 1	Treat activity generated fuels through a variety of methods including broadcast burning, Hand piling, and Tractor Piling.	To Be Determined
Fuels – 2	Treat activity generated fuels (hazard trees) along Forest Service system roads 40N51 & 40N42 by one or a combination of the following treatments: scattering, piling, burning, or utilization (timber, firewood).	To Be Determined
Fuels – 3	Treat hazard trees and fuels with regards to high use areas within project area including Little North Fork Trailhead & Garden Gulch Trail and Trailhead.	To Be Determined
Fuels – 4	Utilize natural features such as ridgelines, streams and rock outcroppings for prescribed burning; also utilize road systems and hand lines to burn harvest units.	To Be Determined
Fuels – 5	To meet the need of reducing potential fire behavior on a landscape scale within the salvage harvested areas, dead and dying trees will be cut and removed throughout area to create a mosaic of fuel loading that does not exceed ten tons per acre. Snag recruitment and CWD left post harvest ideally would fit in the range of 4-8 tons per acre (all large wood class). Removal of trees would occur by one or a combination of the following treatments: scattering, piling, burning, or utilization (timber, firewood).	To Be Determined
Fuels – 6	Post-harvest fuels reduction will serve as site preparation for planting and or natural regeneration	To Be Determined
Fuels – 7	Retain snags in clumps or groups; orient these areas so as to not be consumed in broadcast burn. This retention must be closely coordinated with marking crew and wildlife biologist.	To Be Determined
Fuels – 8	Collaborate with Local Fire Safe Council working group. Include consistency with the Community Wide Protection Plan (CWPP).	To Be Determined
Fuels – 9	All landing piles and biomass fuels should be utilized in priority of Biomass, Firewood, and Burning (based on feasibility).	To Be Determined
Fuels – 10	Burn in accordance with an approved burn plan and an approved Smoke Management Plan that includes a Smoke Permit approved by the Siskiyou County Air Pollution Control District. (all units/alternatives)	To Be Determined
Fuels – 11	Whole tree yarding will be required in timber sale contracts to minimize activity-generated fuels within the stand. Trees will be limbed at the landings. Slash and tops will be piled at the landing to reduce the amount of slash left in the stand. Slash and top piles will either be removed for chip	Skyline and ground based units

	material (biomass) or burned within landing areas.	
Heritage – 1	Any Historic Properties identified within the project area will be managed in accordance with the guidelines set forth in the *First Amended Regional Programmatic Agreement Among the U.S.D.A. Forest Service, Pacific Southwest Region, California State Historic Preservation Officer, and Advisory Council on Historic Preservation Regarding the Process for Compliance with Section 106 of the National Historic Preservation Act for Undertakings on the National Forests of the Pacific Southwest Region* (P.A.).	To Be Determined
Heritage – 2	Standard Resource Protection Measures for all Historic Properties located within the Area of Potential Effect (APE) for this undertaking include the physical demarcation of site boundaries and avoidance of all sites during implementation of the undertaking. Utilizing such protection measures will result in "No Effect" to historic properties.	To Be Determined
Heritage – 3	If it is determined during the planning process that Historic Properties located within the APE cannot be avoided during project implementation, and the undertaking as proposed has the potential to effect Historic Properties eligible or potentially eligible for inclusion in the National Register of Historic Places, then the Klamath National Forest will consult with the California Office of Historic Preservation regarding the determination of effect for the proposed undertaking.	To Be Determined
Heritage – 4	All appropriate Native American groups will be consulted regarding the proposed project design elements throughout the planning process prior to project implementation. Such consultation will be conducted pursuant to Section 106 of the National Historic Preservation Act.	To Be Determined
Botany - 1	Heavy equipment will not operate within the buffer area.	Hazard tree removal along roads 40N51 and 40N51B, salvage unit #284.
Botany - 2	Hazard trees adjacent to a population will be directionally felled away from the population, and may be removed if buffer area is avoided.	Hazard tree removal along roads 40N51 and 40N51B.
Botany - 3	Hazard trees within a population will be directionally felled in the direction that will impact the fewest individuals and left on-site to avoid ground disturbance.	Hazard tree removal along roads 40N51 and 40N51B.
Botany - 4	No project activity will occur within populations that overlap with salvage treatment in areas of low or moderate severity burn.	Salvage unit #284